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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/548,906	04/13/2000	Brian Mitchell Bass	RAL9-99-0127	7471

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EXAMINER

NG, CHRISTINE Y

ART UNIT	PAPER NUMBER
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2663

DATE MAILED: 05/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/548,906

Applicant(s)

BASS ET AL.

Examiner

Christine Ng

Art Unit

2663

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-4 is/are allowed.
- 6) ☒ Claim(s) 5 and 6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 April 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,188,690 to Holden et al in view of U.S. Patent No. 6,185,206 to Nichols et al. Holden et al disclose a method for ATM communications that generates multiple output messages for a single input message (multicasting). The method provides N processing units (switching elements or SEs) where $N > 1$ (Figure 1, Element 150). Using the input routing tables (Figure 1, Element 120), the system assigns each input information unit (ATM cell) to one of the N processing units (SE) for processing. Refer to Column 4, lines 36-41. Furthermore, the system processes each input information unit (ATM cell) to create an output information unit (ATM cell) at one of the N processing units (SE) to send to the output routing tables (Figure 1, Element 170). Refer to Column 6, lines 53-60. The SE also does processing to determine whether the input information unit (ATM cell) is to be a unicast message addressed to one recipient or a multicast message addressed to a plurality of recipients. In Figure 3, cells enter the SE through phase aligners and the elastic buffer (Element 202). Unicast cells are sent to a unicast routing path (Element 210) while multicast cells are sent for routing to a multicast path (Element 220). Refer to Column 6, lines 65-67 to Column 7, lines 1-4.

Holden et al do not include a multicast indicator and an indication that the output information unit is the last multicast message for an input information unit.

Nichols et al discloses an ATM switch with a method for enqueueing and dequeuing multicast cells. Nichols et al disclose a multicast indicator (enqueue multicast bit) used to indicate whether an output information unit (ATM cell) is part of a multicast message. Refer to Column 3, lines 60-64. If the multicast indicator (enqueue multicast bit) indicates the output information unit (ATM cell) is part of a multicast message, the dequeue operator (Figure 3, Element 308) determines whether the output information unit is the last multicast message for a given input information unit by checking the cell count value. Refer to Column 4, lines 21-24. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a multicast indicator and an indication that the output information unit is the last multicast message for an input information unit in order to keep a multicasting cell count (Column 3, lines 15-17), so that the system will know when the multicasting of an information unit is completed and can dedicate resources to other processes.

Holden et al also do not disclose continuing to process each message from a single input information unit until receiving the indication that the output information unit is the last multicast message from a given input information unit.

Nichols et al disclose continuing to process each message from a single input information unit until receiving the indication (cell count value = 0) that the output information unit is the last multicast message from a given input information unit. "A cell count value of zero indicates all cell copies have been transmitted from the switch to the

intended destinations" (Column 1, lines 52-54). Refer to Column 1, lines 25-32 and Column 4, lines 21-24. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include continuing to process each message from a single input information unit until receiving the indication that the output information unit is the last multicast message from a given input information unit; the motivation being that after the all copies of a cell have been multicasted to their destinations, an indication can be provided to the system so that the memory address where the cell was stored can be returned back to a list of free memory locations; thereby freeing memory and maximizing system efficiency.

3. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable by U.S. Patent No. 6,188,690 to Holden et al in view of U.S. Patent No. 4,813,038 to Lee, and in further view of U.S. Patent No. 6,185,206 to Nichols et al. Holden et al disclose a method for multicasting messages in a distributed information processing system for ATM communications. The system includes associating a label field (multicast tag) with each message (ATM cell) based on the dataflow and adding blank bits (timestamp or TS) to the label field (multicast tag) to uniquely identify each multicast message from the same dataflow. Refer to Column 8, lines 65-67 to Column 9, lines 1-6. In Figure 3, Holden et al show how the system determines whether a message is a multicast message. Cells enter the switching element through phase aligners and the elastic buffer (Element 202). Unicast cells are sent to a unicast routing path (Element 210) while multicast cells are sent for routing to a multicast path (Element 220). Refer to Column 6, lines 65-67 to Column 7, lines 1-4. Finally, the system increments the blank bit portion (TS) of the

label field (multicast tag) to distinguish each multicast message from other messages from the same multicast message. Whenever a MC cell is placed into a MC cell buffer, it will be assigned a TS of 0. The SE then examines all pre-existing TSs starting from the newest possible time (0) until it finds a TS not used. Then all TS values below that number are incremented by one. Each multicast message is thus distinguished from other messages from the same multicast message by a timestamp. Refer to Column 8, lines 49-57.

Holden et al do not include that when subsequent occurrences of a multicast message appear, it is assigned to the same processor.

In Figure 1, Lee shows a multicast packet switch with a copy network (Element 3) and a point-to-point routing network (Element 5). The copy network (Element 3) replicates input units from a source and then copies of the packets are assigned to the same processor (point-to-point routing network) to be routed to their final destinations. Refer to Column 3, lines 35-48. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that subsequent occurrences of a multicast message are assigned to the same processor in order to route messages of the same multicast session to their destinations so that only one processor will be assigned to the single multicast session to simplify transmission.

Holden et al and Lee also do not disclose continuing to process a multicast message from a single message until receiving an indicator that it is that last output from the multicast message.

Nichols et al disclose continuing to process each message from a single input information unit until receiving the indication (cell count value = 0) that the output information unit is the last multicast message from a given input information unit. "A cell count value of zero indicates all cell copies have been transmitted from the switch to the intended destinations" (Column 1, lines 52-54). Refer to Column 1, lines 25-32 and Column 4, lines 21-24. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include continuing to process each message from a single input information unit until receiving the indication that the output information unit is the last multicast message from a given input information unit; the motivation being that after the all copies of a cell have been multicasted to their destinations, an indication can be provided to the system so that the memory address where the cell was stored can be returned back to a list of free memory locations; thereby freeing memory and maximizing system efficiency.

Allowable Subject Matter

4. Claims 1-4 are allowed.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

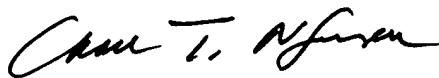
shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine Ng whose telephone number is (703) 305-8395. The examiner can normally be reached on M-F; 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nguyen Chau can be reached on (703) 308-5340. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C. Ng *ew*
May 7, 2004


CHAU NGUYEN
SUPERVISORY PATENT EXAMINER
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